PATENT SPECIFICATION

244,497

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COMPLETE SPECIFICATION.

Improvements in the Radiographic Transmission of Signals and the like.

I, ARCHIBALD MONTGOMERY LOW, Captain in His Majesty's Army, of Royal Air Force, Experimental Works, Feltham, in the County of Middlesex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the radiographic transmission of signals and the like, and has for its object to devise a simple and efficient apparatus by means of which signals, messages, markings or the like made at one place may be transmitted to a distant station at which they will be automatically reproduced upon paper or other receiving medium.

The invention is of particular utility in the case of signalling from aeroplanes, but it will be understood that it may be applied generally in any circumstances in which distant transmission of signals or the like is required.

The invention consists in apparatus for the radiographic transmission of signals, messages, markings or the like which comprises sending apparatus having a marker or the like movable in any one of a plurality of different directions for the purpose of tracing out the required signal or the like, receiving apparatus having a similarly movable marker or the like, and means operable by the sending marker in any of its directions of movement for ensuring that the receiving marker shall be similarly moved so that the required signal or the like will be traced out at the receiving station.

The invention also comprises other details and arrangements hereinafter more particularly referred to.

The accompanying drawings illustrate one mode of carrying out the invention:—

Figures 1 and 2 are more or less diagrammatic views showing in elevation and plan respectively a part of the sending apparatus.

Figure 3 is a diagram illustrating the circuit of the sending apparatus.

Figure 4 is a side elevation showing a detail of Figure 3; while

Figures 5 and 6 are similar views to Figures 1 and 2 showing one convenient form of receiving apparatus.

In describing one method of carrying the invention into effect, I will assume that the messages, markings or the like may be reproduced provided that the pencil, marker or other like contrivance is movable in any one of four directions at right angles to one another, but it will be understood that the invention is equally applicable in the case of messages or the like requiring a smaller or greater number of movements for the pencil or marker.

In carrying my invention into effect in the manner illustrated, I provide at the sending station a table *a* upon which, or upon a paper or other medium upon which, the required messages, signals or markings are made by means of a pencil, marker or the like *b* which is carried in a bridge piece or support *c* conveniently shaped to permit of the requisite location of the table or the like *a*, the carrier *c* with the pencil being movable in one direction by means of a slot *d* in a bridge piece *e* which itself is movable relatively to the table or the like *a* in a direction at right angles to the direction of movement permitted by the slot *d*, so that starting from a central position the pencil

[*Price* 1/-]

or marker will be capable of movement in four directions at right angles to one another.

The carrier c is supported upon a conductor f by means of a ball and slipper g and carries a plate h which is formed of insulating material but which carries conducting segments i^1, i^2, i^3, i^4, (Figure 3) corresponding to the four directions of movement of the marker. In conjunction with the conductors upon the plate h I provide selecting gear which is indicated by the general reference letter k in Figure 3, and which may be of the character described in my Specification No. 195,100, and which comprises, for example, the discs k^1, k^2, k^3 and k^4 having different numbers of projections thereon, and corresponding respectively to the segments i^1, i^2, i^3 and i^4.

It will be understood that the plate h is separated from the plate f by a very small distance which may, for example, be of the order of one-sixty-fourth of an inch, and the arrangement is such that upon commencing to move the marker b in one direction, the segment corresponding to that direction will make contact with the conductor f, with the result that the particular selecting disc corresponding to such segment and consequently to such direction of movement of the sending marker, will be brought into operation, and the selective signals of such disc will be transmitted to the receiving apparatus, the discs k^1 etc. being returned to their zero position by means of springs l (Figure 4) or other convenient means.

The receiving apparatus may be an ordinary telewriter of suitable form, or as shown in Figures 5 and 6, it may resemble the sending apparatus in that it consists of a pencil or marker m movable in a slot n in a bridge piece o which itself is movable relatively to the table or the like p, in a direction at right angles to the direction of movement permitted by the slot n, the pencil or marker and the bridge piece being adapted to be moved by any suitable means as, for example, by nuts and screws, cords or other operative members suitably controlled.

In the example illustrated, the pencil or marker is adapted to be moved in its four directions by one or other of the four wirelessly-operated pawl and ratchet mechanisms r^1, r^2, r^3, r^4 (corresponding to the sending segments i^1, i^2, i^3, i^4) by means of cords passing over pulleys attached to, or operated by, the various ratchet wheels.

In conjunction with these operative mechanisms I provide "pecker gear" such as is described in Specification No. 244,203, the arrangement being such that upon the operation of one of the signal sending discs of the selective mechanism k (corresponding to the depression of one of the contacts upon the plate h) the particular operative mechanism of the receiving apparatus which corresponds to the particular segment concerned is selected for operation to the exclusion of the others; in consequence the moment the sender begins to move the marker b in one direction, the corresponding operative mechanism for the receiving marker is selected, and this operation is effected during the continued movement of the marker b by the signals sent by one or other of the wheels s (Figure 1) t (Figure 2) which, by means of the cords or the like s^1 and t^1, are caused to rotate during the movement of the marker b. The result will be that any particular movement of the marker b will be reproduced by the marker or the like m, and any message signal or marking made by the sender will be exactly reproduced upon the paper, chart or the like p of the receiving apparatus.

The releasing or annulling signal called for in the above mentioned specifications for returning the apparatus to normal position, may be produced in any suitable manner as, for example, by the spring contacts u which will be completed if the marker b be raised until such contacts are brought up against the under surface of the table or the like a.

It is to be understood that the foregoing details of construction are given by way of example only, as my invention is not to be limited to any particular character of signal or the like to be transmitted, nor to the manner in which the same is to be made by the sending station and reproduced by the receiving station, whether photographically or otherwise, and I may modify the means adopted for operating the receiving marker or the like to suit any particular practical requirements.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Apparatus for the radiographic transmission of signals, messages, markings or the like, which comprises sending apparatus having a marker or the like movable in any one of a plurality of different directions for the purpose of tracing out the required signal or the like, receiving apparatus having a similarly movable marker or the like, and means operable by the sending marker in any of its directions of movement for

ensuring that the receiving marker shall be similarly moved so that the required signal or the like will be traced out at the receiving station, substantially as described.

2. Apparatus according to Claim 1, in which the sending marker or the like is carried by a member mounted in a ball and slipper and carries a plate having a plurality of contacts corresponding to the directions of movement of the marker and associated with a fixed contact, substantially as and for the purpose set forth.

3. Apparatus according to Claim 2, in which the contacts are connected to selective signal sending devices adapted to select the required direction of movement for the receiving marker or the like, substantially as described.

4. Apparatus according to Claim 3, in which the sending apparatus is provided with means for ensuring a continued movement of the receiving marker in any one direction corresponding to the continued movement of the sending marker in the same direction, substantially as described.

5. Apparatus for the radiographic transmission of signals, markings or the like, substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 30th day of July, 1918.

MARKS & CLERK.

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[This Drawing is a reproduction of the Original on a reduced scale]

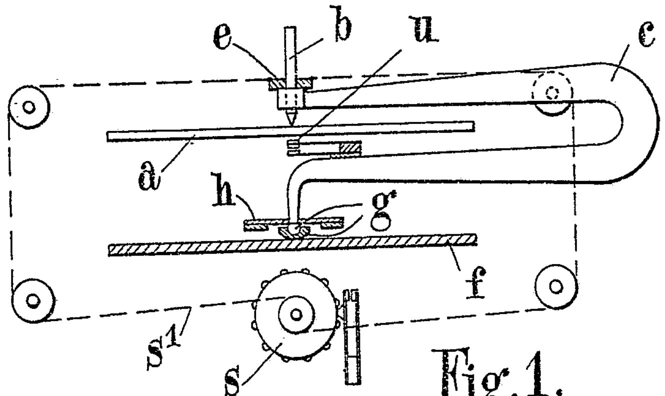


Fig. 1.

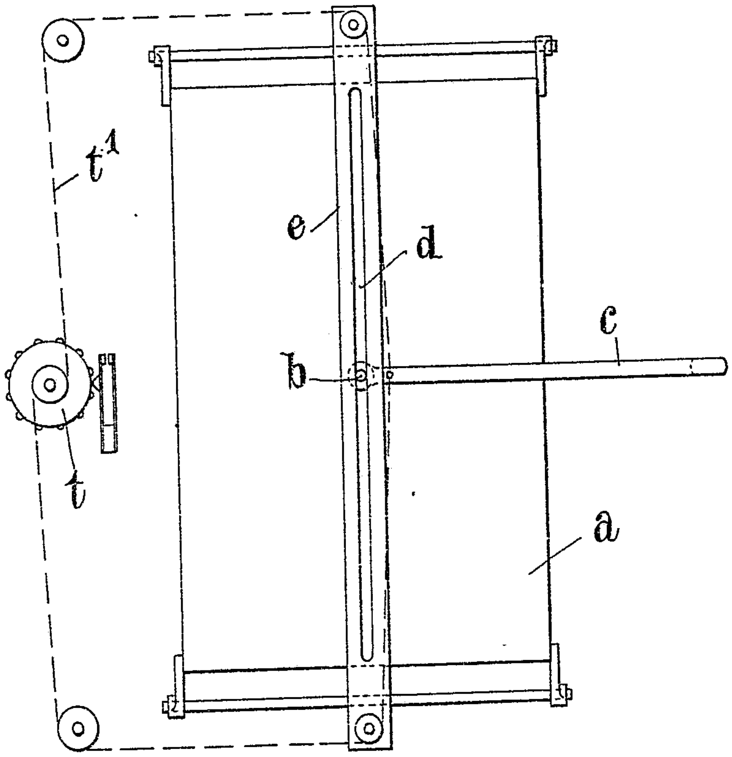
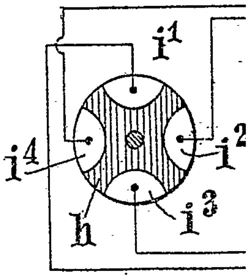


Fig. 2.



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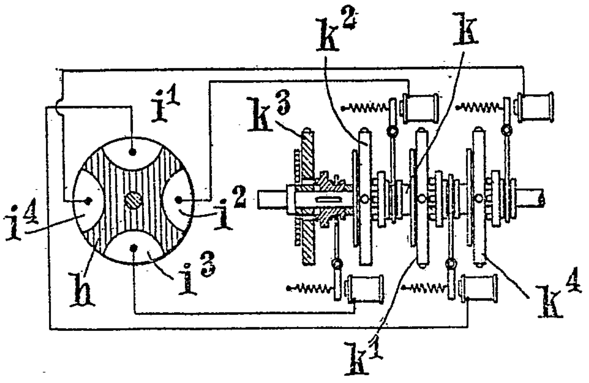


Fig. 3.

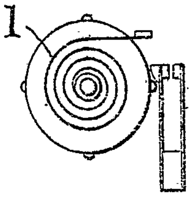


Fig. 4.

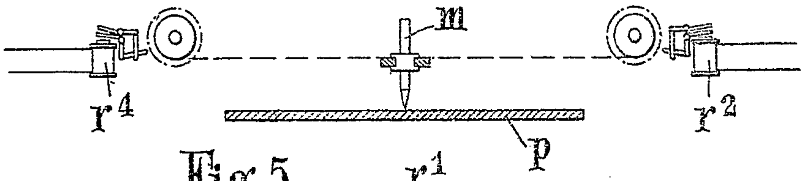


Fig. 5.

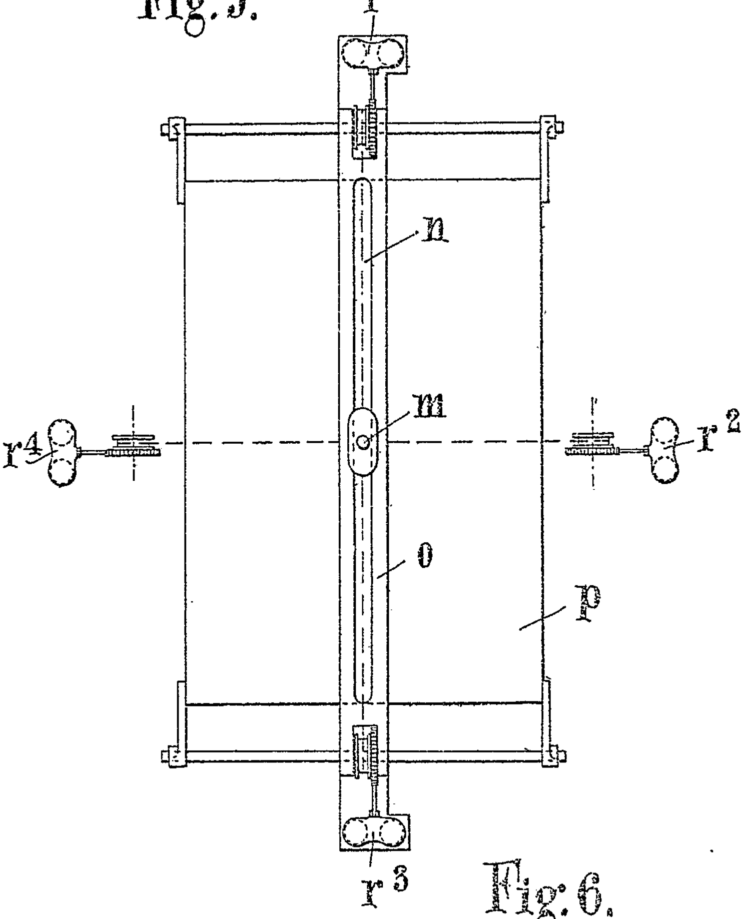


Fig. 6.

Charles & Read Ltd. Photo Litho.

[This Drawing is a reproduction of the Original on a reduced scale]

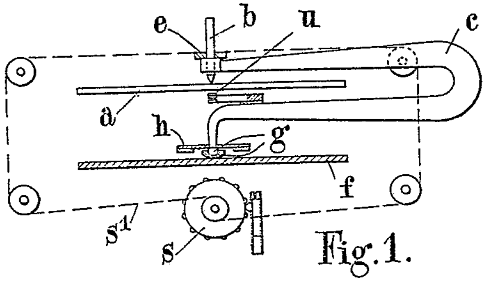


Fig. 1.

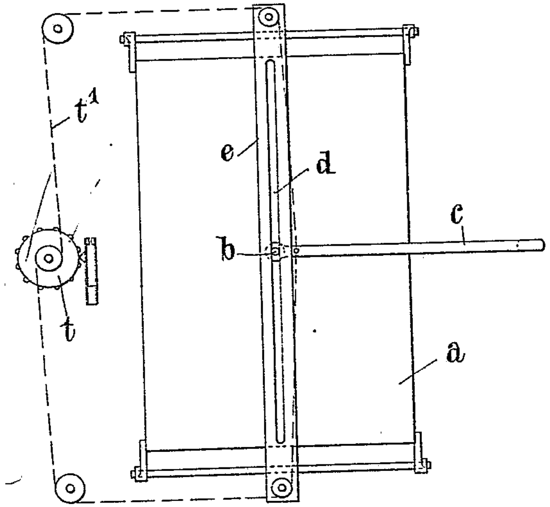


Fig. 2.

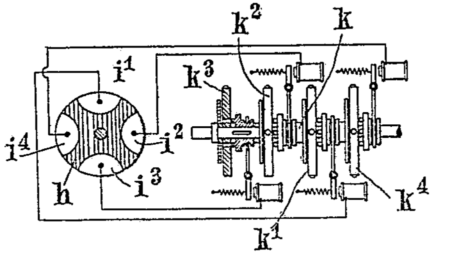
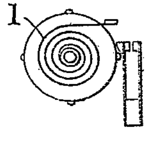


Fig. 3.



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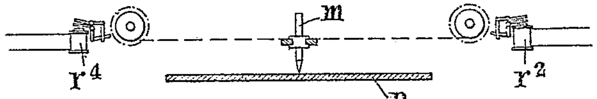

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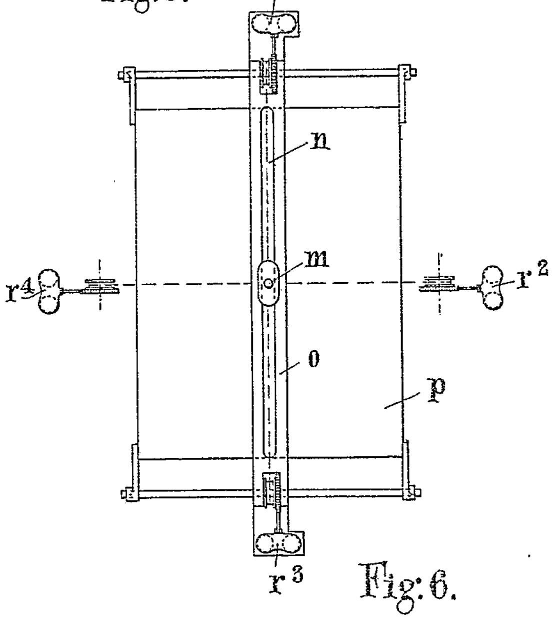

Fig. 6.

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